

7.14 HISTORIC PROPERTIES

Historic properties, as defined by the National Historic Preservation Act, include historic and prehistoric archaeological sites, historic architectural and engineering features and structures, and resources of significance to Native Americans and other social or cultural groups. Historic properties located within the lakes and adjacent zones are subject to the effects of impounded water, as described in Environmental Studies—Least Tern and Piping Plover (Corps, 1994q). Nearly all water-related effects on historic properties are a direct or indirect function of lake level, which determines if a given site is inundated or subject to shoreline erosion.

The long-term potential for erosion at each known site was evaluated based on the monthly water level in each of the four upper lakes (Fort Peck Lake, Lake Sakakawea, Lake Oahe, and Lake Sharpe). The index values derived for comparative purposes are inversely related to the number of months the known sites are potentially subject to shoreline erosion forces. The assumption for potential erosive action was that the site had to be within 3 feet above and 5 feet below the water surface of the lake to be affected by erosive forces. The historic properties index values presented and discussed in this section are, therefore, similar to other values computed for other resources and economic uses: the higher the value, the less adverse the effect on known historic properties within or adjacent to the four upper lakes.

When shoreline erosion forces are diverted to lower elevations in a lake, areas that may not have been intensively surveyed for historic properties before lake filling are affected. Undiscovered sites within the lake have already been damaged to some extent by inundation; however, inundated sites are somewhat protected from the adverse effects of shoreline erosion and looting. Lake levels during periods of drought decline further under the CWCP than the other alternatives and thereby protect known sites from shoreline erosion. Alternatives that limit the drawdown of the upper three lakes with additional drought conservation measures will limit the erosive impact on the unknown sites. This is, no doubt, a benefit; however, since only the effect to known sites is considered in the historic properties index, these alternatives have a lower historic properties index than the CWCP. Overall, it is difficult to determine which alternative is the best plan to follow for the total set of historic properties within the Mainstem Reservoir System.

Although there are a significant number of historic properties on Lake Sharpe, the adverse effects on

historic properties vary little among the alternatives because of the relatively stable water elevations. Water elevations in the two remaining downstream lakes (Lake Francis Case and Lewis and Clark Lake) vary little among the alternatives, and no significant change from current conditions is anticipated. Data concerning historic properties along open river reaches are inadequate for general analysis, but the river reaches are unlikely to measurably influence the index values established for the northernmost lakes.

Table 7.14-1 presents the average annual total and individual lake historic properties index values for the four upper lakes. The average annual total index value for the CWCP is 5,015. This total is distributed among Fort Peck Lake (2.8 percent), Lake Sakakawea (53.0 percent), Lake Oahe (40.1 percent), and Lake Sharpe (4.1 percent). Compared to the CWCP, the MCP, and the four GP options have the same or greater index values within Fort Peck Lake and lesser index values for historic properties within Lake Sakakawea and Lake Oahe. Index values for historic properties within Lake Sharpe are the same for the CWCP, the MCP, and the four GP options.

Figure 7.14-1 shows three separate groupings of total index values for historic properties. The CWCP stands alone at 5,015 units. This value is 140 units more than the next grouping that includes only the MCP at 4,876 units. The four GP options are closely grouped between 4,704 and 4,739 units, a difference of 35 units. This figure also shows the values for the submitted alternatives discussed in Chapter 5 to provide perspective as to how the GP options perform relative to the submitted alternatives. The GP1528 option falls between the three alternatives with a spring rise followed by lower summer flows: the ARNRC, BIOP, and FWS30 alternatives.

One of the primary differences between the CWCP and the MCP is increased water conservation during drought. The MCP also has differences from the intrasystem regulation among the upper three lakes, where the CWCP is balanced and the MCP is unbalanced. These two differences result in a 2.8 percent decrease in total index values for historic properties within the four lakes. Compared to the CWCP, the MCP yields the same index value within Fort Peck Lake, and a 3.8 and 2.0 percent decrease in index values for historic properties within Lake Sakakawea and Lake Oahe, respectively. Compared to the four GP options, the MCP represents the smallest percent change in historic property index values within these lakes from the CWCP.

Table 7.14-1. Average annual historic property values for the upper three mainstem lakes and Lake Sharpe (relative index).

Alternative	Total	1898 to 1997			
		Fort Peck Lake	Lake Sakakawea	Lake Oahe	Lake Sharpe
CWCP	5,015	143	2,658	2,011	204
MCP	4,876	143	2,558	1,971	204
GP1528	4,704	148	2,434	1,918	204
GP2021	4,739	147	2,453	1,935	204
GP1521	4,739	146	2,455	1,934	204
GP2028	4,707	148	2,431	1,924	204

The potential starting point for the GP options, the GP1528 option, has a 15-kcfs spring rise every year from Gavins Point Dam when Lower River flows are below the flood control constraints and there is adequate water in system storage. Based on these factors, a spring rise occurs about one-third of the time over the 100-year period of analysis. The summer release from Gavins Point Dam is flat (28.5 kcfs) and represents a 6-kcfs decrease in the navigation service level (or minimum service) compared to the MCP, which has full navigation service during the majority of summers. These factors result in a 3.5 percent decrease in the total index value for historic properties within the four upper lakes, compared to the MCP's total value. Also, compared to the MCP, the GP1528 option increases the index value for historic properties within Fort Peck Lake (3.5 percent) and decreases the index values by 4.8 and 2.7 percent within Lake Sakakawea and Lake Oahe, respectively.

The following comparisons provide some perspective for what could happen if the GP1528 option now or was the starting point of the GP options in the future, and if there was a need to choose one of the other three options in the future under the adaptive management process. The percent changes presented will be with respect to the values for the GP1528 option.

The GP2021 option has a 20-kcfs spring rise that occurs once every 3 years on average (5 kcfs higher than the GP1528 option) and a summer release in most years that is split between 25/21 kcfs from Gavins Point Dam. Compared to the GP1528 option, the GP2021 option results in a 0.7 percent increase in total index values for historic properties within the upper four lakes. The GP2021 option results in a 0.7 percent decrease within Fort Peck Lake and a 0.8 and 0.9 percent increase in index values within Lake Sakakawea and Lake Oahe, respectively, compared to the GP1528 option.

The GP1521 option has the same spring rise as the GP1528 option (15 kcfs); however, its summer flow is also split (25/21 kcfs from Gavins Point Dam) rather than flat (28.5 kcfs) as with the

GP1528 option. The GP1521 option's effect on historic properties is similar to the GP2021 option because it results in a 0.7 percent increase in total index values and about the same percent decrease (0.9 percent and 0.8 percent) in index values within Lake Sakakawea and Lake Oahe, respectively. The GP1521 option reduces the historic property index value within Fort Peck Lake by 1.4 percent when compared to the GP1528 option. These results indicate that the factors affecting historic property index values under these two options will most likely be influenced by the variation in summer flows rather than the spring rise from Gavins Point Dam.

The GP2028 option has a 20-kcfs spring rise and a flat summer release of 28.5 kcfs that represents a minimum navigation service release from Gavins Point Dam. This combination of factors results in a 0.1 percent increase in total index values for historic properties over the GP1528 option. Compared to the potential starting point option (GP1528), the GP2028 option results in an index value decrease (0.1 percent) within Lake Sakakawea, and an index value increase (0.3 percent) for the historic property index within Lake Oahe. The GP2028 option results in no change in the index value within Fort Peck Lake.

The annual values for total historic resources for the CWCP, the MCP, and the four GP options are shown on Figures 7.14-2 through 7.14-4. Primary differences among the alternatives are most noticeable in the three major droughts when the index values increase from the 4,000 to 5,000 range to about 7,500. As anticipated, the more stringent drought conservation measures result in lower values for the MCP, with the greatest difference at the end of the 1930 to 1941 drought. Almost noticeable is the effect the summer low flows have in the two other major droughts, especially the 1954 to 1961 drought when the index values are much lower for the GP options than under the MCP and the CWCP.

7.14.1 Historic Properties for Tribal Reservations

Five Tribal Reservations are located along the uppermost lakes of the Mainstem Reservoir System, where water level fluctuations may result in impacts to historic properties. Table 7.14-1 shows a comparison of how the different alternatives influence historic properties index values for the affected Reservations during the 100-year period of analysis. Changes in historic properties index values are discussed for each Reservation, starting with the Fort Berthold Reservation in North Dakota and proceeding downstream.

It should be noted that impacts to Reservations may not necessarily coincide with impacts to the associated Tribes. Historically, the various Tribes used lands in many different locations, not limited by the extent of their current Reservations; therefore, historic sites within the boundary of a particular Reservation may be important to Tribes on other Reservations. Further, this analysis does not attempt to address impacts to known sites and/or inundated sites.

The smallest impact to historic properties on Fort Berthold Reservation will occur under the CWCP, which has the highest historic property index values at Lake Sakakawea (Table 7.14-1). The MCP results in a decrease of 3.8 percent from this value,

while the GP options result in even greater drops. The greatest decrease from the CWCP (and thus the greatest increase in risk to historic properties) occurs under the GP2028 option (8.5 percent), while the smallest decrease occurs under GP1521 (7.6 percent).

Standing Rock and Cheyenne River Reservations, located on Lake Oahe, will have the lowest risk to historic properties under the CWCP. The CWCP, at 2,011, has the highest historic property index value of all the alternatives addressed in detail (Table 7.14-1). The MCP results in a decrease of 2.0 percent from the CWCP. Decreases among the GP options range from 3.8 percent (GP2021 and GP1521) to 4.6 percent (GP1528).

Lower Brule and Crow Creek Reservations, located on Lake Sharpe, show no change in the historic properties index under any of the alternatives to the CWCP (Table 7.14-1). This is likely because the MCP and the GP options have very little effect on water level fluctuations in Lake Sharpe, compared to the CWCP.

7 EFFECTS OF ALTERNATIVES SELECTED FOR DETAILED ANALYSIS

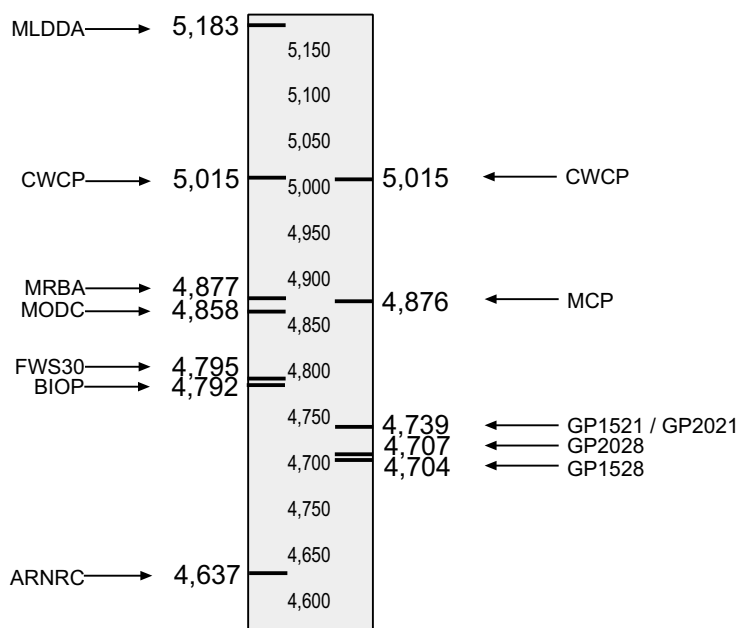


Figure 7.14-1. Average annual historic properties values for Fort Peck Lake, Lake Sakakawea, Lake Oahe, and Lake Sharpe for submitted alternatives and the alternatives.

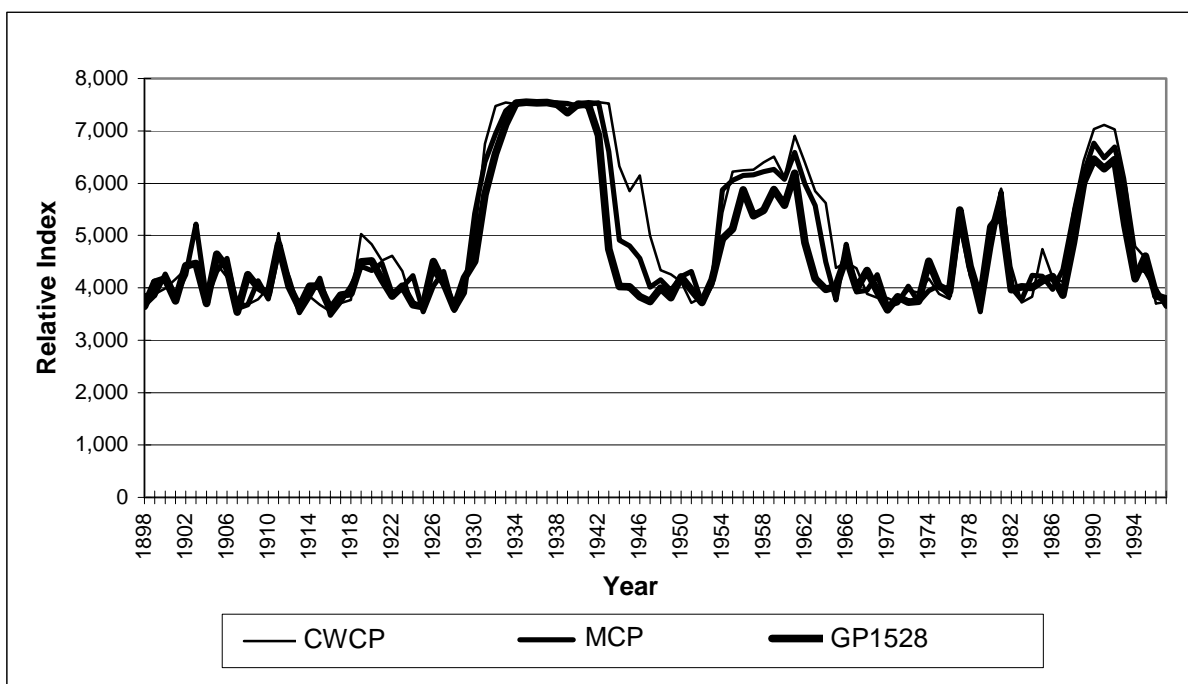


Figure 7.14-2. Average annual values for historic properties for CWCP, MCP, and GP1528.

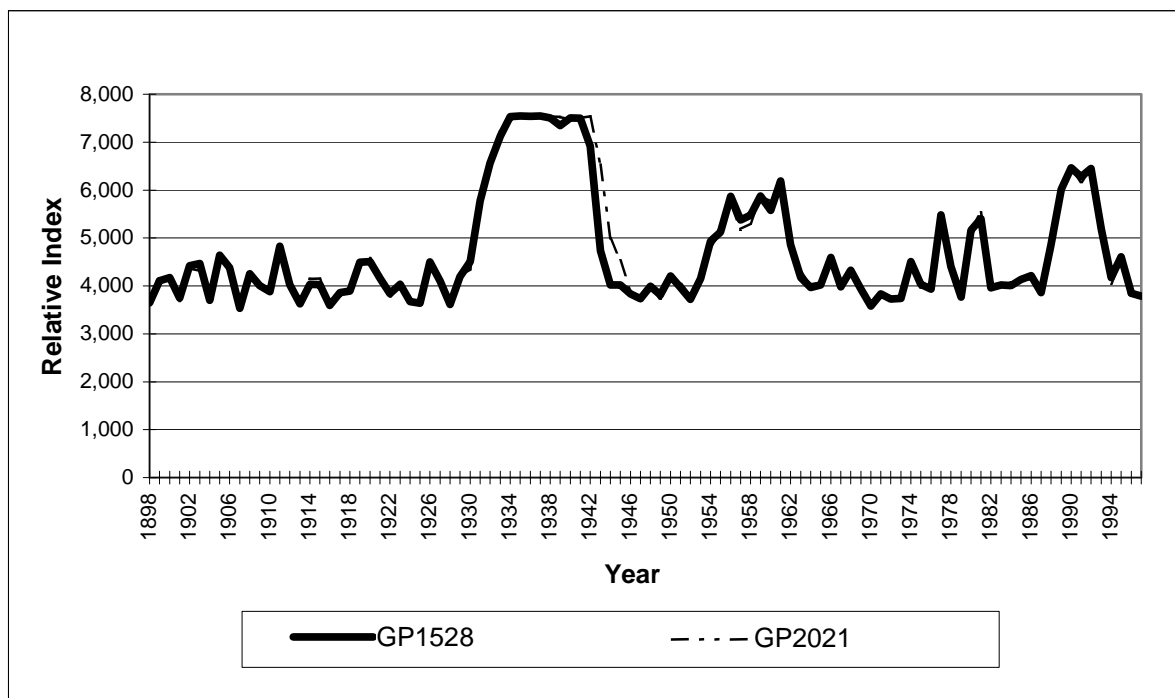


Figure 7.14-3. Average annual values for historic properties for GP1528 and GP2021.

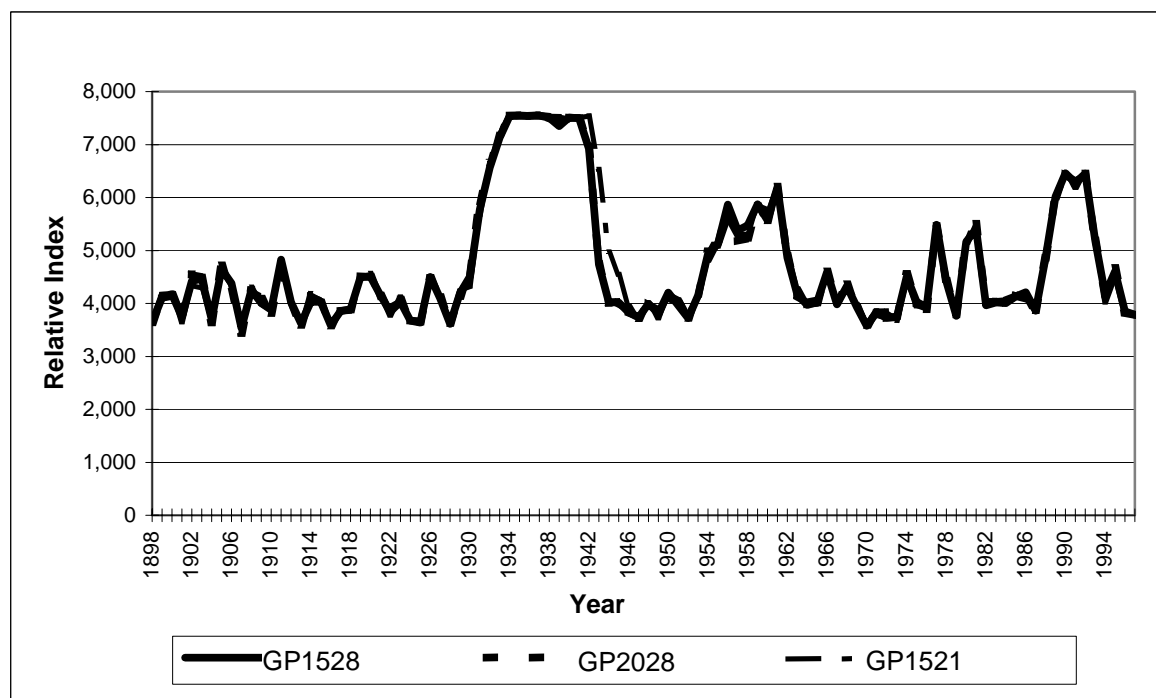


Figure 7.14-4. Average annual values for historic properties for GP1528, GP2028, and GP1521.

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